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ABSTRACT

Research into desktop videoconferencing in 1994 indicated it could be successfully used to improve the quality of interaction between students and teachers and to improve the quality of learning concepts and processes difficult to teach in non-visual distance education. This paper describes a desktop videoconferencing project trial between teachers at the Open Access College (Australia), a family of three primary aged students living on a station in remote South Australia, and two medically disabled students (one studying primary subjects and the other a combination of primary and secondary subjects) in metropolitan Adelaide. Computers running ShareVision were placed at these three locations. One of the main objectives of the study was to determine if desktop video conferencing: (1) makes learning easier and more personal for students; (2) offers improved learning opportunities for concepts and processes that have traditionally proved difficult to address; (3) encourages more meaningful teacher-student interaction, empowering the students and advancing the equity between the two; and (4) promotes student involvement. Results showed: the students on the outback station each believed they received better contact with their teachers; the medically disabled students exceeded all expectations for improvement; and the teachers using ShareVision(TM), who had little or no experience in computers at the beginning of the project, are now competent and literate with the technology. ShareVision(TM) also enables a closer contact between parents and teachers. The teachers and students involved in the trial all say that the "face-to-face" contact achieved with ShareVision(TM) and the increased interactivity it generates is what sets it apart from other technologies used in distance education. (AEF)

Distance Teaching With Vision

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This short article describes a desktop videoconferencing project trial begun in July, 1995 between teachers at the Open Access College and:

- *a family of three students living on a station in remote South Australia.*
- *two medically disabled students in metropolitan Adelaide*

Teaching the curriculum by distance education to these students usually involves contact with their teachers by telephone or HF radio once a week with students posting their written work for marking and comments. Often the time for the round journey of posting in, marking and posting back can take between 2-4 weeks. Teachers make face to face visits to their students only once or twice a year.

Research into desktop videoconferencing in 1994 indicated it could be used successfully to improve the quality of interaction between students and teachers and to improve the quality of learning concepts and processes difficult to teach in the non-visual mode of distance education.

Desk-top videoconferencing incorporates videophone technology on a computer. When teachers make a desktop videophone call with ShareVision™ they simultaneously talk, see their students and interactively share a whiteboard or computer program *all over one ordinary telephone line.*

In the project trial we placed computers running ShareVision™ into:

- the homes of two students enrolled with the OAC as medical conditions precluded them from attending face to face lessons in a DECS school during 1995 and 1996. One student was studying secondary subjects and the other a combination of primary and secondary. The ShareVision™ computer remained with each student for a period of at least one semester.
- another ShareVision™ computer was placed into a family of three primary aged students living on a station in remote South Australia. Students were taught during 1995 from teachers at the Marden Campus and in 1996 by teachers at Port Augusta School Of The Air Campus.

OAC teachers and the students were trained with teachers beginning regular delivery of ShareVision™ lessons during Term 2 and 3, 1995. Most lessons are 30-45 minutes in duration. Subjects being taught include Year 1 Language, Year 6/7 English Language, Year 6/7 Maths, Year 6/7 Society and Environment, Year 9 Maths and Year 9 Society & Environment. Over 60 lessons have been delivered to the students during the trial. Lessons are usually delivered once per week from a ShareVision™ workstation in the OAC.

ShareVision™ installed on a desk in the student's bedroom

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Project Objectives

One of our main aims has been to monitor if learning is being made more personal and easier for students through the use of desktop videoconferencing. We did this through the use of questionnaires and both formal and informal interviews with teachers and students using ShareVision™.

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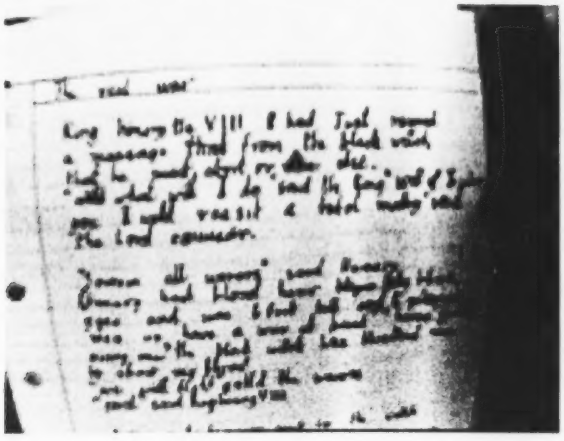
We wanted to determine if desktop videoconferencing offered improved learning opportunities for concepts and processes that have traditionally proved difficult to address in the non-visual mode of distance education and where limited movement video input is required viz. showing case-study material, presenting information requiring high quality still graphics etc.



A student holds up a draft of an assignment they have completed in front of the ShareVision™ camera and takes a snapshot for their teacher to immediately see and interact with the work.

We also hoped to see if desktop videoconferencing encouraged more meaningful teacher-student interaction empowering the students and advancing the equity between the two.

Another objective dealt with issues of student management in the distance mode. We wanted to learn if desktop videoconferencing could deal more efficiently with the tendency for some students to withdraw or become non-participatory in lessons. The visual presence of others who are geographically distant creates a strong sense of social presence and may create the warm environment which some need.

Parents and supervisors also had a means to videoconference with teachers providing them with a more meaningful role in the learning partnership.

Outcomes

OAC teachers and students all say that the 'face to face' contact achieved with ShareVision™ and the increased interactivity this and the whiteboard generates is what sets it apart from other technologies used in distance education.

Remote and Isolated Students

The students on the outback station each believed they received better contact with teachers. Hugh, the youngest (Year 1) had for the very first time, the opportunity to share important things in his life like drawings of himself, his dog and swimming pool with his teacher Miss Lynn and get immediate feedback. He was able to put letters together to make words and associate and draw pictures with those words given the visual and audio encouragement from his teacher much faster with ShareVision™ than using telephone lessons and posting in written work. Hugh generally detests schoolwork but would always be ready and willing to participate in ShareVision™ lessons. His progress was promising in 1995 according to his teacher and his mother who is the home supervisor of all her children's schooling with the OAC. Unfortunately, telecommunications infrastructure problems have restricted the number of successful ShareVision™ lessons to Hugh in 1996.

Hugh's brother, Charlie in Year 6 had difficulty in some literacy skills, particularly spelling. His teacher was able to view and correct his work much faster by having Charlie take a snapshot of his writing viewing it together and correcting it with him on-line. Charlie could see the corrections as his teacher made them and talked to her about them. Corrections could be saved and used in helping with the following week's work.

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Charlie's twin sister Emma also in Year 6 received fewer ShareVision™ lessons than Charlie or Hugh but was able to make some use of ShareVision's™ interactive whiteboard to help improve her work in fractions.

Medically Enrolled Students

Both students enrolled with the OAC on medical reasons and using ShareVision™ have exceeded all our expectations. The student using ShareVision in 1995, although very restricted in movement with a serious physical disability had enough functional capacity in his hands to use the mouse and make valuable contributions to Maths and Society & Environment lessons using tools on the whiteboard. It was extremely heartening to know ShareVision™ was improving the quality of his life. He was extremely well organised, helpful and really looked forward to his weekly lessons with ShareVision™.

The second medically enrolled student using ShareVision in 1996 is also making full use of its features, preparing answers to work on the whiteboard for his teacher to check and give immediate feedback on. Though diagnosed with ADD his concentration span in using ShareVision™ is significantly longer than using traditional print and audio technology in learning.

Other

Another outcome of the ShareVision™ project trials has been the impact the technology has made on the teachers delivering to students with it. Many of the teachers using ShareVision™ had little/no experience in using computers at the beginning of the project but they are now competent and literate with the technology. This enthusiasm has overflowed to other teachers and to other forms of technology use in the Open Access College.

ShareVision™ is also enabling a closer contact between parents and teachers. It provides the means for home-based supervisors (usually parents) to take a more active role in their child's education.

Teachers' comments include:

'The immediate response to student work makes teaching more relevant.'

'Being able to talk through concepts and check for immediate understanding makes learning more personal and interactive.'

'Using ShareVision as a tool for modelling work gives me a strategy which more closely emulates face to face teaching.'

'For the first time I am actually teaching Charlie rather than responding to him.'

'Its so good to be able to see Menno's face — I can tell whether he understands or not without having to wait until assignments are posted in'.

while students have said things like .....

'It was good and lots of fun. I liked seeing Miss Lynn, We played games. It was good to tell news and draw pictures of what we were talking about and she could see it.'

'Its been fun and I have learnt a lot too.' ShareVision is an excellent program for school and we could also sell sheep on it.'

'It was good that I could use maps so quickly and see how to do my Maths. I couldn't do it on paper — it would take me a long time'.

'ShareVision was very good. I could see my teacher and what he was doing. I once was having trouble with my fractions so Mr McTaggart rang me up on ShareVision and showed me how to do it. If we had not had ShareVision my teacher could only have told me how to do it over the phone and I would probably have got it wrong any way.'

A home supervisor of students using ShareVision had this to say:

'I think there is a great future in using ShareVision for non school-based students. Though it will probably won't replace correspondence the extra help it gives gifted or slow learners is marvellous. We have found it wonderful for solving problems. It is time consuming though. When my mother did her schooling there was never any contact with schools. She really did it on her own no matter what the problem. Now we have the telephone, radio and a remote teacher 'face to face' for part of each week with ShareVision.'

Issues

The one real concern in using ShareVision™ with Hugh, Emma and Charlie but beyond the scope of the project was the problem 'making the link' as often as we wanted due to the inability of the telecommunications infrastructure to support the technology. This was despite the homestead being on a telephone landline. When links were successful they were always at the lowest end of the bandwidth possible (7200 kbps). Sometimes line quality became unacceptable during a lesson resulting in the breakup of the 'live video'. component to ShareVision™. When this did occur and Hugh, Charlie or Emma only managed to see a still image of their teacher, the audio component of ShareVision™ always held up and the lesson became audio only until the connection re-established itself. This problem continues today as the students receive ShareVision™ lessons from teachers at Pt Augusta School Of The Air.

A close-up view of the computer monitor showing a snapshot in the larger whiteboard work area and the smaller remote and local video windows on the left hand side.

Conclusion

The project is already effectively meeting its objectives for improving the quality of learning to these students. It is reducing student's isolation and improving their quality of learning.

In particular, desktop videoconferencing is:

- enhancing the learning experiences of students disadvantaged by their geographical location or medical disability
- increasing the effectiveness of the teacher's lesson material to be delivered
- offering excellent opportunities for sharing visual concepts and getting an immediate response
- a tool for modelling work
- interactive, easy, enjoyable and fun to use

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- allowing college-based supervisors to participate more meaningfully into their child's distance education teaching and learning.

Desktop videoconferencing is making the quality of learning for these students far superior to any other more traditional form of distance education they were receiving even 6 months ago. The project trial is continuing and funding is being sought to expand the project. A ShareVision™ workstation costs in the order of $5000. For more information about this and other projects using technology in distance education at the OAC, direct your www browser toward the OAC home page

http://www.saschools.edu.au/open_acc/open_acc.html

or contact Roger Edmonds on telephone (08) 3627590, fax (08) 362 0045 or email redmonds@www.saschools.edu.au.

Roger Edmonds is a project officer for alternative delivery systems at the Open Access College. His responsibilities include the ongoing project management of delivering the curriculum of distance education using audiographic and desktop videoconferencing to over 60 client schools in SA and to several college-based students. He is also responsible for developing the use of the internet both within the OAC and to college-based students. Roger provides training and development for OAC teachers, OA school supervisors and OA students in using all types of interactive teaching technologies. He is chairperson of the DECS Videoconferencing working party and convener of the OAC R-12 Curriculum Technology Committee.